

IV. AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for forming a thin film, wherein a film-forming gas is supplied from a gas supplying device to a vacuum container which can be evacuated by an exhausting device to reduce gas pressure in the container, an electric power is applied from a power applying device to the film-forming gas to produce plasma from the gas in which a thin film is formed on an article to be film-covered disposed on a supporting member in the vacuum container, the gas supplying device including a duct system, a gas supply member having a hollow plate member with a gas supply surface portion and a cover air-tightly covering the hollow plate member opposite the gas supply surface portion, the gas supply surface portion being opposed to a film-forming surface of the article to be film-covered disposed on the supporting member in the vacuum container, the power applying device including a power applying electrode connected to a power source for forming the plasma and disposed in the vacuum container, the gas supply member being disposed in the vacuum container without connection to the power source, the supporting member being grounded, the power applying electrode being disposed in a surrounding region around a space between the article to be film-covered disposed on the supporting member in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article,

wherein the exhausting device discharges a gas from a region in a vicinity of a periphery portion of the gas supply member in an opposite direction to the article to be film-covered disposed on supporting member through holes of a support member for supporting the gas supply member which is provided between an inside peripheral wall of the vacuum container and the gas supply member,

wherein the power applying device includes four divided electrodes as the power applying electrode for applying the electric power and high frequency power sources each connected to the divided electrodes, respectively, each of the four divided electrodes is in a shape of a bent plate forming two electrode sections integrally connected substantially perpendicularly to each other, the divided electrodes being disposed in a quadrilateral shape in a plan view surrounding the space between

the article to be film-covered in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article, each divided electrode disposed adjacent an inner surface of vacuum container such that at least the gas supply member, the article to be film-covered and the supporting member are disposed internally of the quadrilateral shape, and

wherein the hollow plate member defines a hollow internal space formed therein with a first plurality of gas supply holes formed in the gas supply surface portion in fluid communication with the hollow internal space of the hollow plate member, the cover forming an air-tight gas-receiving compartment with a second plurality of gas supply holes extending through the hollow plate member, formed in the gas supply surface portion and in fluid communication with the gas-receiving compartment but in fluid isolation from the hollow internal space of the hollow plate member such that the film-forming gas is supplied to the hollow internal space of the hollow plate member via a first gas guide duct and the film-forming gas is supplied to the gas-receiving compartment via a second gas guide duct being independent of the first gas guide duct, both the film-forming gas supplied to the hollow internal space of the hollow plate member via the first gas guide duct and the film-forming gas supplied to the gas-receiving compartment via the second gas guide duct are dispersed into the space between the article to be film-covered and the gas supply surface portion of the gas supply member opposed to the article as the film-forming gases exit respective ones of the first and second plurality of gas supply holes formed in the gas supply surface portion independently of each other, and

wherein the duct system includes a hollow gas guide member, a first gas duct and a second gas duct, the hollow gas guide member extends into the vacuum container and terminates in the air-tight gas-receiving compartment, the first gas duct and the second gas duct supply the film-forming gas from a film-forming gas source to the vacuum container, the first gas duct is in fluid communication with the hollow gas guide member so that the hollow gas guide member supplies the film-forming gas to the air-tight gas-receiving compartment, the second gas duct extends through and is in fluid isolation from the hollow gas guide member and the air-tight gas-receiving

compartment and terminates in the hollow internal space for supplying the film-forming gas thereto.

2. (Canceled)

3. (Canceled)

4. (Original) An apparatus according to claim 1, wherein distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is varied from a peripheral region to a central region of the gas supply surface portion.

5. - 15. (Canceled)

16. (Previously Presented) An apparatus according to claim 1, further comprising a driving device disposed at least partially within the vacuum container and connected to the supporting member, the driving device operative to move the supporting member either towards or away from the gas supply surface portion of the gas supply member.

17. (Previously Presented) An apparatus according to claim 4, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and hydrogen gas as the film-forming gas, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is increased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa to 10

Pa during formation of the film to form a crystalline silicon film on the article disposed on the supporting member.

18. (Previously Presented) An apparatus according to claim 4, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and oxygen (O_2) gas as the film-forming gas and introducing the gases in a separated state into the gas supply surface portion of the gas supply member using the first gas guide duct and the second gas guide duct, respectively, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa to 10 Pa during formation of the film to form a silicon oxide film on the article disposed on the supporting member.

19. (Previously Presented) An apparatus according to claim 4, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and ammonia (NH_3)gas as the film-forming gas, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa to 10 Pa during formation of the film to form a silicon nitride film on the article disposed on the supporting member.

20. (Currently Amended) An apparatus for forming a thin film, wherein a film-forming gas is supplied from a gas supplying device to a vacuum container which can be evacuated by an exhausting device to reduce gas pressure in the container, an electric power is applied from a power applying device to the film-forming gas to produce plasma from the gas in which a thin film is formed on an article to be film-covered disposed on a supporting member in the vacuum container, the gas supplying device including a duct system, a gas supply member having a hollow plate member with a gas supply surface portion and a cover air-tightly covering the hollow plate member opposite the gas supply surface portion, the gas supply surface portion being opposed to a film-forming surface of the article to be film-covered disposed on the supporting member in the vacuum container, the power applying device including a power applying electrode connected to a power source for forming the plasma and disposed in the vacuum container, the gas supply member being disposed in the vacuum container without connection to the power source, the supporting member being grounded, the power applying electrode being disposed in a surrounding region around a space between the article to be film-covered disposed on the supporting member in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article,

wherein the exhausting device discharges a gas from a region in a vicinity of a periphery portion of the gas supply member in an opposite direction to the article to be film-covered disposed on supporting member through holes of a support member for supporting the gas supply member which is provided between an inside peripheral wall of the vacuum container and the gas supply member, and

wherein the hollow plate member defines a hollow internal space formed therein with a first plurality of gas supply holes formed in the gas supply surface portion in fluid communication with the hollow internal space of the hollow plate member, the cover forming an air-tight gas-receiving compartment with a second plurality of gas supply holes extending through the hollow plate member, formed in the gas supply surface portion and in fluid communication with the gas-receiving compartment but in fluid isolation from the hollow internal space of the hollow plate member such that the film-forming gas is supplied to the hollow internal space of the hollow plate member via a

first gas guide duct and the film-forming gas is supplied to the gas-receiving compartment via a second gas guide duct being independent of the first gas guide duct, both the film-forming gas supplied to the hollow internal space of the hollow plate member via the first gas guide duct and the film-forming gas supplied to the gas-receiving compartment via the second gas guide duct are dispersed into the space between the article to be film-covered and the gas supply surface portion of the gas supply member opposed to the article as the film-forming gases exit respective ones of the first and second plurality of gas supply holes formed in the gas supply surface portion independently of each other, and

wherein the duct system includes a hollow gas guide member, a first gas duct and a second gas duct, the hollow gas guide member extends into the vacuum container and terminates in the air-tight gas-receiving compartment, the first gas duct and the second gas duct supply the film-forming gas from a film-forming gas source to the vacuum container, the first gas duct is in fluid communication with the hollow gas guide member so that the hollow gas guide member supplies the film-forming gas to the air-tight gas-receiving compartment, the second gas duct extends through and is in fluid isolation from the hollow gas guide member and the air-tight gas-receiving compartment and terminates in the hollow internal space for supplying the film-forming gas thereto.

21. (Previously Presented) An apparatus according to claim 20, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and hydrogen gas as the film-forming gas, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is increased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa

to 10 Pa during formation of the film to form a crystalline silicon film on the article disposed on the supporting member.

22. (Previously Presented) An apparatus according to claim 20, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and oxygen (O_2) gas as the film-forming gas and introducing the gases in a separated state into the gas supply surface portion of the gas supply member using the first gas guide duct and the second gas guide duct, respectively, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa to 10 Pa during formation of the film to form a silicon oxide film on the article disposed on the supporting member.

23. (Previously Presented) An apparatus according to claim 20, wherein the gas supplying device is a device for supplying at least silane (SiH_4) gas and ammonia (NH_3)gas as the film-forming gas, and the distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blowing from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion, and wherein the exhausting device retains the gas pressure in the space between the article to be film-covered disposed on the supporting member and the gas supply surface portion of the gas supply member in a range from 10^{-2} Pa to 10 Pa during formation of the film to form a silicon nitride film on the article disposed on the supporting member.